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SEQUENCE LISTING

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<110> Idaho Research Foundation, Inc.

<120> METHODS FOR REDUCING SOMATIC CELL COUNT IN MILK

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<141> 2006-07-06

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<151> 2005-01-07

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<151> 2004-01-08

<160> 19

<170> PatentIn version 3.3

<210> 1

<211> 18

<212> PRT

<213> Staphylococcus aureus

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Cys Tyr Phe Ser Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys
1 5 10 15

Thr Cys

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<211> 54

<212> DNA

<213> Staphylococcus aureus

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tgctattttt catcaaaga taatgtaggt aaagttacag gtggcaaaac ttgt

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<212> PRT

<213> Artificial

<220>

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Cys Tyr Phe Ser Ser Lys Asp Asn Ala Gly Gly Lys Thr Cys
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42

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 <223> xaa can be any naturally occurring amino acid

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Phe	Thr	Gly	Leu	Met	Glu	Asn	Met	Lys	Val	Leu	Tyr	Asp	Asp	His	Tyr
			20					25					30		
Val	Ser	Ala	Thr	Lys	Val	Lys	Ser	Val	Asp	Lys	Phe	Leu	Ala	His	Asp
		35					40					45			
Leu	Ile	Tyr	Asn	Ile	Ser	Asp	Lys	Lys	Leu	Lys	Asn	Tyr	Asp	Lys	Val
	50					55					60				
Lys	Thr	Glu	Leu	Leu	Asn	Glu	Gly	Leu	Ala	Lys	Lys	Tyr	Lys	Asp	Glu
65					70				75						80
Val	Val	Asp	Val	Tyr	Gly	Ser	Asn	Tyr	Tyr	Val	Asn	Cys	Tyr	Phe	Ser
				85					90					95	
Ser	Lys	Asp	Asn	Val	Gly	Lys	Val	Thr	Gly	Gly	Lys	Thr	Cys	Met	Tyr
			100					105					110		
Gly	Gly	Ile	Thr	Lys	His	Glu	Gly	Asn	His	Phe	Asp	Asn	Gly	Asn	Leu
		115					120					125			
Gln	Asn	Val	Leu	Ile	Arg	Val	Tyr	Glu	Asn	Lys	Arg	Asn	Thr	Ile	Ser
	130					135					140				
Phe	Glu	Val	Gln	Thr	Asp	Lys	Lys	Ser	Val	Thr	Ala	Gln	Glu	Leu	Asp
145					150					155					160
Ile	Lys	Ala	Arg	Asn	Phe	Leu	Ile	Asn	Lys	Lys	Asn	Leu	Tyr	Glu	Phe
				165					170					175	
Asn	Ser	Ser	Pro	Tyr	Glu	Thr	Gly	Tyr	Ile	Lys	Phe	Ile	Glu	Asn	Asn
			180					185					190		
Gly	Asn	Thr	Phe	Trp	Tyr	Asp	Met	Met	Pro	Ala	Pro	Gly	Asp	Lys	Phe
		195					200					205			
Asp	Gln	Ser	Lys	Tyr	Leu	Met	Met	Tyr	Asn	Asp	Asn	Lys	Thr	Val	Asp
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Ser Lys Ser Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa
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Glu Ser Gln Pro Asp Pro Thr Pro Asp Glu Leu His Lys Ser Ser Glu
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Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr
 20 25 30

Val Ser Ala Thr Lys Val Met Ser Val Asp Lys Phe Leu Ala His Asp
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser
 85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr
 100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu
 115 120 125

Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser
 130 135 140

Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp
 145 150 155 160

Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe
 165 170 175

Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn
 180 185 190

Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe
195 200 205

Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp
210 215 220

Ser Lys Ser Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa
225 230 235 240

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<223> Xaa can be any naturally occurring amino acid

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Glu Ser Gln Pro Asp Pro Met Pro Asp Asp Leu His Lys Ser Ser Glu
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Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr
20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp
35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val
50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu
65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser
85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr
100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu
115 120 125

Gln Asn Val Leu Val Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser
130 135 140

Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp
145 150 155 160

Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe
165 170 175

Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn
180 185 190

Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe
195 200 205

Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp
210 215 220

Ser Lys Ser Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa
225 230 235 240

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Glu Ser Gln Pro Asp Pro Met Pro Asp Asp Leu His Lys Ser Ser Glu
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Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr
20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp
35 40 45

Leu Ile Tyr Asn Ile Asn Asp Lys Lys Leu Asn Asn Tyr Asp Lys Val
50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Asn Lys Tyr Lys Asp Glu
65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser
85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Ser Gly Lys Thr Cys Met Tyr
100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu
Page 6

115 120 125
 Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser
 130 135 140
 Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp
 145 150 155 160
 Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe
 165 170 175
 Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Ser Asn
 180 185 190
 Gly Asn Thr Phe Trp Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe
 195 200 205
 Asp Gln Ser Lys Tyr Leu Met Ile Tyr Lys Asp Asn Lys Met Val Asp
 210 215 220
 Ser Lys Ser Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa
 225 230 235 240

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<400> 13

Glu Ser Gln Pro Asp Pro Thr Pro Asp Glu Leu His Lys Ser Ser Glu
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 Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr
 20 25 30
 Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp
 35 40 45
 Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val
 50 55 60
 Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser
 85 90 95
 Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr
 100 105 110
 Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu
 115 120 125
 Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser
 130 135 140
 Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp
 145 150 155 160
 Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe
 165 170 175
 Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn
 180 185 190
 Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe
 195 200 205
 Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp
 210 215 220
 Ser Lys Arg Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa
 225 230 235 240

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 Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr
 20 25 30
 Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Arg Leu Lys Asn Tyr Asp Lys Val
 50 55 60
 Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu
 65 70 75 80
 Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser
 85 90 95
 Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr
 100 105 110
 Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu
 115 120 125
 Gln Asn Val Leu Val Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser
 130 135 140
 Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp
 145 150 155 160
 Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe
 165 170 175
 Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn
 180 185 190
 Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe
 195 200 205
 Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp
 210 215 220
 Ser Lys Arg Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa
 225 230 235 240

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<400> 15

Glu Ser Gln Pro Asp Pro Thr Pro Asp Glu Leu His Lys Ala Ser Lys
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Phe Thr Gly Leu Met Glu Asn Met Lys Val Leu Tyr Asp Asp Arg Tyr
20 25 30
Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp
35 40 45
Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val
50 55 60
Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu
65 70 75 80
Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Phe
85 90 95
Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr
100 105 110
Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu
115 120 125
Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser
130 135 140
Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp
145 150 155 160
Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe
165 170 175
Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn
180 185 190
Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe
195 200 205
Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp
210 215 220
Ser Lys Arg Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa
225 230 235 240

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Glu Ser Gln Pro Asp Pro Thr Pro Asp Glu Leu His Lys Ala Ser Lys
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Phe Thr Gly Leu Met Glu Asn Met Lys Val Leu Tyr Asp Asp Arg Tyr
 20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Cys Phe Phe
 85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr
 100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu
 115 120 125

Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser
 130 135 140

Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp
 145 150 155 160

Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe
 165 170 175

Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn
 180 185 190

Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe
 195 200 205

Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp
 210 215 220

Ser Lys Arg Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa
 Page 11

225 230 235 240

<210> 17
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<400> 17

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Phe Thr Gly Leu Met Glu Asn Met Lys Val Leu Tyr Asp Asp His Tyr
 20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Gly Leu Ala Lys Lys Tyr Lys Asp Glu
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Cys Gly Lys
 85 90 95

Thr Cys Met Tyr Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp
 100 105 110

Asn Gly Asn Leu Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg
 115 120 125

Asn Thr Ile Ser Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala
 130 135 140

Gln Glu Leu Asp Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn
 145 150 155 160

Leu Tyr Glu Phe Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe
 165 170 175

Ile Glu Asn Asn Gly Asn Thr Phe Trp Tyr Asp Met Met Pro Ala Pro
 Page 12

180

185

190

Gly Asp Lys Phe Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn
 195 200 205

Lys Thr Val Asp Ser Lys Ser Val Lys Ile Glu Val His Leu Thr Thr
 210 215 220

Lys Asn Gly Xaa
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<210> 18
 <211> 231
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Phe Thr Gly Leu Met Glu Asn Met Lys Val Leu Tyr Asp Asp His Tyr
 20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Gly Leu Ala Lys Lys Tyr Lys Asp Glu
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser
 85 90 95

Ser Gly Lys Thr Cys Met Tyr Gly Gly Ile Thr Lys His Glu Gly Asn
 100 105 110

His Phe Asp Asn Gly Asn Leu Gln Asn Val Leu Ile Arg Val Tyr Glu
 115 120 125

Asn Lys Arg Asn Thr Ile Ser Phe Glu Val Gln Thr Asp Lys Lys Ser
 Page 13

130

135

140

Val Thr Ala Gln Glu Leu Asp Ile Lys Ala Arg Asn Phe Leu Ile Asn
 145 150 155 160

Lys Lys Asn Leu Tyr Glu Phe Asn Ser Ser Pro Tyr Glu Thr Gly Tyr
 165 170 175

Ile Lys Phe Ile Glu Asn Asn Gly Asn Thr Phe Trp Tyr Asp Met Met
 180 185 190

Pro Ala Pro Gly Asp Lys Phe Asp Gln Ser Lys Tyr Leu Met Met Tyr
 195 200 205

Asn Asp Asn Lys Thr Val Asp Ser Lys Ser Val Lys Ile Glu Val His
 210 215 220

Leu Thr Thr Lys Asn Gly Xaa
 225 230

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<400> 19

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Phe Thr Gly Leu Met Glu Asn Met Lys Val Leu Tyr Asp Asp His Tyr
 20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Gly Leu Ala Lys Lys Tyr Lys Asp Glu
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser
 Page 14

85

90

95

Ser Lys Asp Asn Ala Gly Gly Lys Thr Cys Met Tyr Gly Gly Ile Thr
 100 105 110

Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu Gln Asn Val Leu
 115 120 125

Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser Phe Glu Val Gln
 130 135 140

Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp Ile Lys Ala Arg
 145 150 155 160

Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe Asn Ser Ser Pro
 165 170 175

Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn Gly Asn Thr Phe
 180 185 190

Trp Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe Asp Gln Ser Lys
 195 200 205

Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp Ser Lys Ser Val
 210 215 220

Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa
 225 230 235